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ABSTRACT

This paper provides initial results of a longitudinal study of a nationally representative sample of first-generation students, their college choices, their academic and social integration into the institution, their postsecondary persistence and attainment outcomes, and their labor market outcomes. The study analyzed data from the 1989-90 Beginning Postsecondary Students Longitudinal Study, which found that first-generation students had particular demographic and enrollment characteristics. They were more likely to be female, older, and independent; to have dependents and lower incomes; to be enrolled in two-year institutions; and to be enrolled part time. First-generation students were more likely than other students to value improving their financial and professional status but were less likely to complete their postsecondary education within five years. Five years after beginning postsecondary education, first-generation students who had achieved certificates or degrees were employed in similar positions and earned salaries comparable to counterparts whose parents had attended college. When demographic, enrollment, first-year academic performance, and institutional characteristics were controlled, first-generation students were less likely to persist in postsecondary education. Eighteen tables detail the study's findings. (Contains 35 references.) (DB)

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First-Generation Students: A Longitudinal Analysis of Educational and Early Labor Market Outcomes

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This paper was presented at the annual meeting of the Association for the Study of Higher Education held in Miami, Florida, November 5-8, 1998. This paper was reviewed by ASHE and was judged to be of high quality and of interest to others concerned with higher education. It has therefore been selected to be included in the ERIC collection of ASHE conference papers.

Introduction

In the second half of the twentieth century, enrollment in college among recent high school graduates has grown dramatically. Between 1950 and 1972, the proportion of 18 -24 year-olds enrolled in postsecondary education approximately doubled, from 14 to 32 percent (U.S. Department of Education, 1976). Many of those who enrolled in college during these years are the parents of students graduating from high school today. Unlike their counterparts who enrolled in postsecondary education two or more decades ago, students enrolling in postsecondary education today are more likely than not to have parents who attended at least some college.

Between 1972 and 1995, the percentage of high school graduates 16- to-24-years-old immediately entering college increased from 49 to 62 percent (U.S. Department of Education, 1997). Individuals enroll in postsecondary education for many reasons, including intellectual, economic, and social considerations; however, the degree to which these reasons affect the decision to enroll varies among students. For many individuals, there is no question about their enrollment; such students typically have parents who are college educated and view postsecondary education simply as "the next logical, expected, and desired stage in the passage toward personal and occupational achievement" (Terenzini, et al., 1994). For others, enrollment represents a deliberate attempt to improve their social, economic, and occupational standing. Many of these students are the first members of their families to enroll in any education beyond high school. Consistent with other research, this study defines these students as first-generation students (Terenzini, et al., 1996; Levine and Nidiffer, 1996). For these first-generation students, postsecondary education offers both opportunity and risk, since it represents a venture into unknown territory.

According to data from the U.S. Department of Education, between 1989 and 1995, the proportion of first-generation students enrolling in postsecondary education for the first time grew from 43 to 47 percent (Kojaku and Nuñez, 1998). Both the number and proportion of first-generation students are expected to increase further in the near future (Terenzini, et al., 1996).

First-generation students often have family and background characteristics that are associated with risk for attrition. For example, they are more likely than their peers to be from low-income families, have lower achievement, and have lower overall degree aspirations. They are also more likely to be older and to have dependent children than their non-first-generation counterparts (Terenzini, et al., 1996).

First-generation students also enroll predominantly in community colleges (Willett, 1989; Institute for Higher Education Policy, 1997). While enrollment in this sector may be less expensive than that in the 4-year sector, community colleges also report lower degree attainment rates. Once enrolled in postsecondary education, first-generation students tend to work more hours off campus than their non-first-generation counterparts, complete fewer total course hours during their first year, and receive less support from family and friends for their enrollment (Terenzini, et al. 1996). Finally, first-generation students are less likely to attain a postsecondary credential than their counterparts.

Some research has used the concept of "integration and cultural transformation" to help explain the difficulties first-generation students face (Bean and Metzner, 1985; London, 1992). Regardless of generational status, initial enrollment in postsecondary education is a time of great upheaval. Students must adapt academically and socially to their new institutional surroundings, and the extent to which they adapt can play a role in their postsecondary outcomes. Poor academic preparation, family responsibilities, and full-time work, for instance, can pose severe challenges to a student's ability to integrate into postsecondary institutional life. In addition to these social and academic adaptations, first-generation students face the additional task of cultural adaptation (London, 1989). Specifically, there is a distinct element of "cultural mobility" associated with postsecondary enrollment, particularly if no other family member has had any postsecondary education (London, 1989). While many students have no trouble making this transition, others may encounter conflict between the cultures of their families/friends and their new college culture. How first-generation students negotiate these conflicts may influence their ultimate success.

In order for postsecondary institutions to better understand the unique needs of first-generation students, more must be known about who they are and their particular

enrollment experiences. The purpose of this paper is to provide initial results of a longitudinal study involving a nationally representative sample of first-generation and other students. This information is intended to serve as a foundation for future research about this group of students. The paper begins by describing the background characteristics of first-generation students. Next, it looks at where first-generation students enroll and why they have chosen their particular institution, followed by an analysis of measures of academic and social integration within the institution. The third section of the paper examines the postsecondary persistence and attainment outcomes of first-generation students relative to their peers, and the report concludes by describing their labor market outcomes. Finally, to measure the independent effect of first-generation status on persistence and degree or certificate attainment, the results of a multivariate analysis are presented.

The conceptual framework for examining the relationship between student characteristics, enrollment, and involvement behaviors and persistence and attainment is based on Tinto's model of student retention and its relationship to academic and social integration (Tinto, 1975; Tinto, 1993). In this framework, enrollment, attendance, institution type, and student behaviors that influence student involvement in the institution are also assumed to impact students' feeling of membership in and participation in institutional life. Consequently, the level of participation influences students' decisions to stay enrolled and attain a degree, to transfer to another institution, or to discontinue enrollment in postsecondary education. Variables for academic and social integration, or the level of academic and social involvement of students in their institutions, are also examined and included in the multivariate analysis.

Methodology

The analysis begins with crosstabulations of first-generation and non-generation students on various enrollment, integration, persistence and attainment, and labor market outcomes characteristics to explore similarities and differences between these two groups in an effort to explain how their postsecondary experiences may differ. It then employs a multivariate analysis to examine the effect of first-generation status on student

persistence and attainment while controlling for the effects of other key variables. The publicly accessible Data Analysis Software (DAS), developed by the Department of Education National Center for Education Statistics, was used to generate the descriptive and multivariate analysis results.[1]

This paper relies on data from the 1989-90 Beginning Postsecondary Students Longitudinal Study (BPS:90/94) of a nationally representative sample of students who enrolled in postsecondary education for the first time during the 1989-90 academic year. BPS: 90/94 is the longitudinal component of the NPSAS:90 survey, a nationally representative sample that includes students enrolled in all types of postsecondary institutions, ranging from 4-year colleges and universities to 2-year and less-than-2-year vocational institutions. The BPS cohort was surveyed again in 1992 and 1994, with the latter follow-up offering a wide range of information regarding student persistence and degree attainment five years after the beginning students initially enrolled in postsecondary education.

BPS: 90/94 was also used to examine the labor market experiences of first-generation students relative to those of their peers who obtained less than baccalaureate degrees (associate's degrees and vocational certificates). BPS: 90/94 spans 5 years, which is too little time for an analysis of labor market outcomes among bachelor's degree recipients, given that a majority of them may have minimal post-degree labor market experience.[2] For a more complete analysis of labor market and further educational outcomes among bachelor degree recipients, the analysis of the BPS:90/94 data was supplemented with data from

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[1] Once the estimated means were calculated using this software, analysis proceeded through students' t-tests on pairwise comparisons of these estimated means. In order to reduce the probability of Type I error in a set of multiple comparisons, the author of this report calculated Bonferroni intervals based on families of students' t tests. Families of tests were defined as pairwise tests comparing an outcome for two or more related categories of students. The width of a Bonferroni interval depends on the number of comparisons actually made within a family. When only one pairwise comparison is made, the Bonferroni interval is the same as the confidence interval obtained from a student's t tests. The more comparisons that are made, the narrower the Bonferroni internal and thus the greater the t statistic needed for each difference to guarantee a significance level <=.05 for all of the comparisons taken together. For a discussion of family-wise error rates, see Alan J. Klockars and Gilbert Sax, *Multiple Comparisons*, Beverly Hills, CA: Sage Publications, 1986, p. 17.

[2] An analysis of data from the Baccalaureate and Beyond Longitudinal Study (B&B:93/94) revealed that only 36 percent of 1992–93 bachelor's degree recipients had completed their degree within 4 years of beginning postsecondary education. A. McCormick and L. Horn, *A Descriptive Summary of 1992–93 Bachelor's Degree Recipients 1 Year*

the 1993 Baccalaureate and Beyond Longitudinal Study (B&B:93/94), a nationally representative sample of students who completed their bachelor's degrees in the 1992-93 academic year. The first follow-up survey was conducted in 1994 one year after graduation. B&B: 93/94 provides information regarding students' immediate entry into the labor market, graduate education, or both (i.e., within one year after bachelor's degree attainment).

Results

Consistent with previous research, in this study, first-generation students are defined as those whose parents' highest level of education is a high school diploma or less. In cases where parents have different levels of education, the maximum education level of either parent determines how the student is categorized. In this descriptive analysis, these students are compared with either all other students whose parents attended at least some college (non-first-generation students) or two subgroups: those whose parent(s) have attended some college, but have attained less than a bachelor's degree; and those whose parent(s) have attained a bachelor's or an advanced degree.

Figure 1 shows the distribution of 1989-90 beginning postsecondary students according to parental education level. Forty-three percent of first-time beginning students in 1989–90 were identified as first-generation. For students not classified as first-generation, 40 percent had parents with some college experience, and 60 percent had parents who had attained a bachelor's or higher degree. Figure 2 compares basic demographic characteristics of first-generation students and their non-first-generation counterparts. First-generation students were less likely to be white, non-Hispanic, than their non-first-generation counterparts and more likely to be Hispanic (11 percent versus 5 percent)[3]. Compared with their counterparts, first-generation students were also more likely to be female (57 percent versus 51 percent).

Later, With an Essay on Time to Degree (Washington, DC: U.S. Department of Education, National Center for Education Statistics, 1996), 28.

[3] As described in the first footnote, all comparisons of frequencies were tested for statistical significance using t-tests, at a significance level <or= to .05.

Not surprisingly, the families of first-generation students had lower family incomes than those of non-first-generation students. Nearly one-quarter of first-generation students had family incomes in the lowest quartile, compared with 5 percent of students whose parents had attained higher educational levels. [4]First-generation students were also more likely to be older, to be married, and to have dependents than students whose parents had attained higher levels of education. Consistent with their age differences, first-generation students were more likely than non-first-generation students to be financially independent (both with and without dependents), and more likely to be married.

Enrollment Characteristics

The results presented in figure 3 show that first-generation students were more likely than other students to attend public 2-year institutions (primarily community colleges); private, for-profit institutions; and other less-than-4-year institutions.[5] Students whose parents had any college education, on the other hand, were more likely to attend either public 4-year or private, not-for-profit 4-year institutions.

Figure 4 shows another view of students' enrollment patterns: the distribution of first-generation and non-first-generation students in each institution type. First-generation students composed more of the student body at public 2-year institutions than either public 4-year or private not-for-profit 4-year institutions (51 percent versus 30 percent and 25 percent). Even higher proportions of first-generation students enrolled in private, for-profit institutions than at public 2-year institutions.

Consistent with their increased enrollment in less than 4-year institutions, first-generation students were much more likely than those whose parents had obtained more

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[4] These income quartiles were based on quartiles defined in the National Postsecondary Student Aid 1990 (NPSAS⊗0) data, which included not only beginning postsecondary students, but all first-year students. Since students in the BPS: 89/90 sample were more likely to be traditional, dependent, and have higher incomes than other first-year students, they were more likely to have family SES in the highest quartile.

[5]Other less-than-4-year institutions include public less-than-2-year institutions (2 percent); private, not-for-profit less-than 2-year institutions (0.3 percent); and private, not-for-profit 2-year institutions (2 percent). Despite the different functions of these institutions, there are too few cases in each specific type of institution for reliable analyses.

education (30 percent versus 13 percent) to attend part time during their first year in postsecondary education (table 1). Generally, as the level of parents' education increased, the likelihood of part-time attendance decreased. Table 2 shows that first-generation students were more likely than other students to be in certificate or associate's degree programs, and less likely to be in bachelor's degree programs (table 2).

First-generation students were also more likely to delay their first entry (46 percent versus 19 percent) into postsecondary education than their counterparts whose parents had more than a high school education (table 3). First-generation students also differed from their non-first-generation counterparts in how they financed their education. Consistent with their lower socioeconomic status, they were more likely to receive financial aid, in general, and grants and loans, in particular, than their non-first-generation counterparts (table 4). Students whose parents had attended some college but never completed a bachelor's degree were more likely than students whose parents had college degrees to have received financial aid, both generally and in terms of grants and loans.

Consistent with their increased likelihood of part time attendance and enrollment in less than 4-year institutions, first-generation college students were also more likely to be working full time while enrolled in school. Compared with their counterparts, more first-generation students reported working full time while enrolled during their first year in postsecondary education (33 percent versus 24 percent) (table 5).

Previous research has indicated that first-generation students are often less academically prepared than non-first-generation students (Terenzini, et.al, 1996). Table 6 shows the proportions of students who reported that they were enrolled in remedial courses during the 1989-90 school year. Across all sectors, first-generation students did not differ from their counterparts in terms of the number of remedial courses they were taking. Yet this study revealed differences within different sectors of postsecondary education among first-generation and non-first-generation students on the need for remedial education in order to obtain adequate preparation for college-level work. At public 4-year institutions, there was not a significant difference between the proportions

of first-generation and non-first-generation students who were taking remedial courses (table 6). At private, not-for-profit 4-year institutions, however, first-generation students were more likely to be taking remedial courses. On the other hand, non-first-generation students at public 2-year institutions were somewhat more likely than first-generation students to be enrolled in remedial coursework.

To sum, in terms of overall enrollment and attendance patterns, first-generation students were much more likely than their counterparts to attend less-than-4-year institutions and to attend part-time. They were more likely to receive financial aid and to work full-time while enrolled in school. In terms of course enrollments, first-generation students at private-not-for-profit-4-year institutions were more likely than non-first-generation students to be taking remedial courses during their first year, while their rates of enrollment in remedial courses at public 4-year institutions were equivalent to those of their non-first-generation counterparts. Consistent with other research showing that they begin college less academically prepared than other students, first-generation students at private, not-for-profit 4-year institutions were more likely than non-first-generation students to be enrolled in remedial courses. Yet those first-generation students at public 4-year institutions were no more likely to be taking remedial courses than their counterparts. It may be that public 4-year institutions' more standardized admissions requirements may draw a student body composed of more equivalently prepared students, regardless of parental education background or SES, than those of private, not-for-profit 4-year institutions.

Personal Goals

The following section examines the relative importance of various matters to first-generation and non-first-generation students. These measures fall into two general categories: those associated with professional/financial achievement and those associated with personal aspirations. Professional/financial achievement matters include being able to find steady work, being successful in one's line of work, becoming successful in one's own business, becoming an authority in a given field, being very well off financially, being a leader in the community, or influencing the political structure. Personal matters

include getting away from a particular area of the country, living close to parents and relatives, having children, giving their own children better opportunities, and having leisure time to enjoy personal interests. Examining differences in how important these various factors are to first-generation and non-first-generation college students can shed light on how they might differ in their motivations for enrolling in postsecondary education.

Table 7 shows students' views on a variety of professional and financial achievement matters. For each measure, students were asked whether the factor was "very important," "somewhat important," or "not important" to them. Compared with other students, first-generation students more often reported that factors related to financial security were very important to them personally. In addition, they were more likely than students whose parents had more than a high school education to say that "being very well off financially" was very important to them. As a group, first-generation students and students whose parents had some postsecondary experience but less than a bachelor's degree were more likely than students whose parents had attained a bachelor's degree or higher education level to say that "being very well off financially" was very important to them. Students whose parents had not earned a bachelor's degree were more likely than those whose parents had a bachelor's degree to report that "being able to find steady work" was very important to them.

By contrast, first-generation students were less likely than their counterparts to emphasize measures related to having political power as matters of importance. In particular, they were somewhat less likely than students whose parents had more than a high school education to report "influencing the political structure" or to report "being a leader in [their] community" as very important to them.

According to first-generation student status, there were also several differences in the personal matters that students cited as very important (table 8). For example, first-generation students were more likely than other students to cite "[giving their own] children better opportunities than [they've] had" as very important to them. Students whose parents had never earned bachelor's degrees were more likely than the group of

students whose parents had a bachelor's or advanced degree to report this as an important matter (table 8).

In light of their lower socioeconomic status, it is not surprising that students whose parents had less education valued financial achievement, employment stability, and giving their children better opportunities more highly than those whose parents had more education. First-generation students' relatively decreased emphasis on having political influence in their community suggests that they were motivated to enroll in college more by the possibility to increase their socioeconomic status than by the potential to shape community life.

Academic and Social Integration

Based on Tinto's model of student retention (1975, 1993), this study included an analysis of students' academic and social integration during the 1989–90 academic year relative to their generation status. These measures represent students' involvement in and adaptation to the institution. Each index is an average of students' responses to questions regarding the frequency of their participation in various academic and social activities during their first year in postsecondary education. Academic integration is a composite based on student responses regarding how often they attended career-related lectures, met with their advisor concerning academic plans, talked about academic matters with faculty, or participated in study groups with other students. Social integration is a composite based on student responses regarding how often they went places with friends from school, participated in school clubs, had contact with faculty outside of class, or participated in student assistance centers/programs. The behaviors used to measure academic and social integration may influence the persistence of younger students differently from that of older students, who are more likely to be first-generation.[6] In the

[6]Refer to figure 2 of this paper for information about the relationship between age and first-generation status. Limited research has been conducted that compares how academic and social integration measures affect the postsecondary experiences of younger, more traditional, and older, more nontraditional, students. This study revealed an association between age and low academic integration levels; students who were 18 years old or less were less likely than members of the other age groups to have low academic integration levels (BPS:90/94 DAS). Tinto, who initially developed the concepts of academic and social integration, acknowledges that measures of integration have largely been based on research about younger students enrolled in 4-year institutions and implies that integration measures may vary in importance for older, nontraditional students in a wider range of institution types. V. Tinto, *Leaving College: Rethinking the Causes and Cures of Student Attrition* (Chicago: The University of Chicago Press, 1993), 135.

next two sections, the analyses of academic and social integration are presented both overall and according to the type of institution the students attended.

Table 9 shows the academic integration levels of students with different parental education levels. First-generation students, overall, showed lower levels of academic integration than other students. They were less likely than students whose parents had at least some postsecondary experience to have high levels of academic integration (23 percent versus 33 percent), and more likely to report low levels of integration (30 percent versus 19 percent, respectively). Students whose parents had at least some college were more likely than their first-generation counterparts to have a high academic integration score. In addition, when the average academic integration scores were examined, among all students, first-generation students had a lower average score (2.3) than non-first-generation students (2.5) (table 10).

Differences in levels of academic integration according to first-generation status varied with the type of institution students attended. For example, at private, not-for-profit 4-year institutions, first-generation students were somewhat more likely than their non-first-generation counterparts to report low levels of integration (table 9). At public 2-year institutions, first-generation students were also more likely than their counterparts to report low levels of academic integration. First-generation students in public 2-year institutions also had a lower average index score for academic integration than non-first-generation students, as did students in other les-than-4-year institutions. In other types of institutions, the average academic integration scores of both groups of students did not differ (table 10).

First-generation students also appeared to have lower levels of social integration in the college environment than their non-first-generation counterparts. In general, first-generation students were less likely than students whose parents had some college or had attained at least a bachelor's degree to have high levels of social integration, and more likely to have low levels. These patterns also held when institutions were examined

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According to one study that explored the differential impact of a model of academic and social integration on the persistence of younger and older students, integration was more important to the persistence of younger students than it was for the older cohort. J. Grosset, "Patterns of Integration, Commitment, and Student Characteristics and Retention among Younger and Older Students," *Research in Higher Education* 32 (2) (1991): 159–178.

separately, except for students in private, for-profit and other less-than-4-year institutions (table 11).[7] Among all students, first-generation students showed a lower average score of social integration (1.9) than non-first-generation students (2.2) (table 12). Differences in the scores between these two groups of students varied according to the kind of institution attended. For example, in public 4-year and private, not-for-profit 4-year institutions, first-generation students had lower average index scores for social integration than other students (2.2 versus 2.3, and 2.4 versus 2.6, respectively). First-generation students in public 2-year institutions also scored lower (1.8) than non-first-generation students (2.0). There were no measurable differences between the average social integration scores of first-generation and other students at private, not-for-profit and other less-than-4-year institutions.

These descriptive results indicate that first-generation students are less involved in the academic and social life of their institutions. As suggested earlier, their lower scores in academic and social integration may be related to the fact that first-generation students tend to be older than non-first-generation students, and may have less time or interest in participating in these kinds of activities.[8] Alternatively, cultural differences, such as the value that students' families place on attaining a postsecondary education credential, may influence the extent to which students whose parents have different educational levels choose to involve themselves in the institutional community.

Persistence and Attainment

The analysis of first-generation students' persistence and attainment levels five years after entering postsecondary education begins with table 13. Persistence was defined as either having attained a degree or still being enrolled at the time of the five-year follow-up survey. As table 13 shows, whether or not a student attained a degree or was still enrolled in postsecondary education was strongly associated with his or her

[7]First-generation students in public 2-year institutions were less likely to report moderate levels of integration than their counterparts (42 percent versus 55 percent).

[8]As with academic integration, there was an association between age and low levels of social integration. With the exception of the difference between the proportions of 25–29-year-olds and those 30 or older on low scores of social integration, as age increased, the likelihood of a low score on social integration also increased. Conversely, with the exception of a difference between those in the 25–29 and 30 or older age groups, as age increased, the likelihood of a high score on social integration decreased (BPS:90/94 DAS).

parents' education level. Over half (55 percent) of first-generation students had attained a degree or were still enrolled by 1994, yet first-generation students who began their postsecondary education in 1989–90 were much less likely than non-first-generation students to have either attained a degree or to be enrolled in postsecondary education 5 years after their initial enrollment.[9] As parental education levels rose, so did the likelihood of persistence, from 55 percent for first-generation students to 65 percent for students whose parents had some college, and to 76 percent for those whose parents had a bachelor's degree or higher. Almost half of first-generation students had attained no degree and were no longer enrolled by follow-up, compared with less than one-third of other students (table 13).

With respect to the type of degree attained, first-generation students were less likely than other students to have attained a bachelor's degree and more likely to have attained a vocational certificate. The likelihood of having attained an associate's degree did not differ according to first-generation status (table 13). Underscoring the strong association of parents' education level with students' persistence and attainment, there were also differences in persistence and attainment rates between first-generation students and students whose parents had some college experience but never attained a bachelor's degree. Students whose parents had some college experience but had attained less than a bachelor's degree were more likely than first-generation students to persist, to attain any sort of degree, to earn a certificate, and to earn a bachelor's degree.

When differences in persistence and attainment were examined according to institution type, the results held for students who began at public 4-year and private, not-for-profit 4-year institutions. While a majority of first-generation students at these institutions had attained a degree or were still enrolled as of 1994, first-generation students from both types of 4-year institutions were less likely to have persisted overall than their non-first-generation counterparts. After 5 years, about one-third of first-generation students from public 4-year institutions and three in ten of those from private, not-for-profit 4-year institutions had no degree and were no longer enrolled, compared

[9]Since these students were interviewed only 5 years after they began their postsecondary education, not enough time had elapsed to determine if the students who were no longer enrolled were taking time off from school and planning to

with 23 percent and 16 percent, respectively, of their counterparts (table 13). About one-third of first-generation students in public 4-year institutions and over half in private, not-for-profit 4-year institutions had earned bachelor's degrees after five years; these degree attainment rates were lower than those for non-first-generation students.

When examining proportions of students who had attained a degree or were still enrolled after 5 years, at public 4-year institutions, first-generation students were no less likely than students whose parents had some college but less than a bachelor's degree to either still be enrolled or have attained a degree. While they were as likely to have attained bachelor's degrees from private, not-for-profit 4-year institutions, first-generation students were less likely to either still be enrolled and have attained a degree after 5 years than students whose parents had some college experience but had not received a bachelor's degree . This suggests that from public 4-year institutions, first-generation students had similar persistence rates as students whose parents had some postsecondary education, but they may have been taking longer to finish. However, although they attained degrees at similar rates as their counterparts, it appears that first-generation students were less likely than students whose parents had postsecondary experience below a bachelor's degree to remain enrolled in private, not-for-profit 4-year institutions.

Among those who began at public 2-year institutions, after 5 years, first-generation students were also less likely than their counterparts to have attained degrees or to be enrolled in 1994 (table 13). While there were no significant differences in the proportions of students who earned any degrees, a lower proportion of first-generation students than non-first-generation students was still enrolled and working toward a degree after 5 years. However, there is some evidence that first-generation students may have transferred without a degree from 2-year to 4-year institutions in higher proportions than their counterparts.[10] But first-generation students who had persisted in these institutions were

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return to complete their education or whether they had decided not to continue.

[10]Of all students who had persisted in 4-year public or private, not-for-profit institutions until 1994, first-generation students were more likely than non-first-generation students (31 percent versus 25 percent) to have transferred during the previous 5 years. U.S. Department of Education, National Center for Education Statistics, 1989–90 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS: 90/94), Data Analysis System. Of all 1989 beginning postsecondary students, 35 percent had transferred to another institution by 1994. Of those who had attended

no more likely than their peers to hold associate's degrees. This finding suggests that this particular group of first-generation students was actually still enrolled, but in a different postsecondary education sector, after 5 years. In comparing the persistence of first-generation students and their counterparts whose parents had some college experience but no bachelor's degree, first-generation students were as likely as members of this other group to persist and to attain any degrees.

Consistent with findings in other studies demonstrating that undergraduates are more likely to persist at 4-year institutions than they are at 2-year public institutions.[11], first-generation students were more likely to persist when they began at 4-year public and 4-year private, not-for-profit institutions than when they began at public 2-year institutions (table 13). These findings also held for non-first-generation students.

In light of research linking part-time enrollment status to a lower probability of persistence and attainment,[12] it is also important to consider enrollment status when examining educational outcomes. Among those attending full time, first-generation students remained less likely than non-first-generation students to persist after beginning at 4-year public and 4-year private, not-for-profit institutions (table 14). On the other hand, first-generation students initially enrolled full time in public 2-year institutions had similar persistence and attainment rates as those of their non-first-generation counterparts.

Comparing across institution types, full-time first-generation students from public 4-year institutions had lower attainment rates than first-generation students from 4-year private, not-for-profit institutions (table 14). While their persistence rates also appeared lower after beginning at public 4-year institutions, compared with 4-year private, not-for-profit institutions, there was not enough evidence to conclude that first-generation

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more than one institution by the 1994 follow-up, 12 percent had earned an associate's degree and 4 percent had earned a certificate at the first institution in which they enrolled. See A. McCormick, *Transfer Behavior Among Beginning Postsecondary Students: 1989–94* (Washington, DC: U.S. Department of Education, National Center for Education Statistics, 1997), tables 2 and 4.

[11] L. Berkner, S. Cuccaro-Alamin, and A. McCormick, *Descriptive Summary of 1989-90 Beginning Postsecondary Students: 5 Years Later* (Washington, DC: U.S. Department of Education, National Center for Education Statistics, 1996).

students' levels of persistence by each type of institution were different. This finding suggests that first-generation students from public 4-year institutions may have been taking a longer time to finish their degrees. Full-time first-generation students from public 2-year institutions were as likely to attain degrees as their counterparts from 4-year public institutions. Consistent with the findings for all first-generation students, when controlling for full-time enrollment status, first-generation students from 2-year public institutions were less likely either to attain degrees or persist than first-generation students from 4-year private not-for-profit institutions.

Labor Market Outcomes

As described earlier in this report, being well-off financially, being able to find steady work, and being able to give their own children better opportunities were more important to first-generation students than to those whose parents had bachelor's degrees. To examine whether degree attainment might be an equalizing force in the occupational and social status of students who had completed their degrees by 1994, this section analyzes 1989–90 beginning students' occupations as reported in the 1994 follow-up survey.

The labor market analysis was conducted separately for students who had attained subbaccalaureate credentials (associate's degrees and certificates) and those who had earned bachelor's degrees. BPS:90/94 data were used for subbaccalaureate students, and B&B:93/94 data were used for bachelor's degree recipients. A general analysis of employment outcomes for students who did not attain a degree and were no longer enrolled according to age was also conducted using BPS:90/94 data.

For subbaccalaureate degree recipients and for those not seeking a degree, labor market participation was determined by their principal job in 1993, while for bachelor's degree recipients it was determined by their principal job as of April 1994. Measures of labor market participation included whether they were employed, their occupation, whether their occupation was related to their major, and whether they needed their

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[12]U.S. Department of Education, National Center for Education Statistics. *The Condition of Education 1997* (Washington, DC: 1997), 38–39.

education and training to get their principal job. For bachelor's degree recipients, starting salaries as of April 1994 were also examined after controlling for gender.

Similar proportions of first-generation students who received certificates, associate's, or bachelor's degrees were employed as their counterparts with similar degrees when they were followed up in 1993 or 1994 (table 15). When controlling for type of degree attained, there were no observed differences in occupation types between first-generation students and their non-first-generation counterparts. Additionally, no differences were found in average annual salaries as of April 1994 among bachelor's degree recipients according to first-generation status: both first-generation and non-first-generation students earned roughly $23,000, on average (table 16).[13] Although males had considerably higher salaries than females,[14] when salaries were examined separately for male and female bachelor's degree recipients, there were still no differences in earnings according to first-generation status. Among students who did not attain a postsecondary credential within 5 years and were no longer enrolled in postsecondary education, there were few differences in the employment attributes of both groups according to first-generation status.

Graduate School Enrollment

Table 17 shows the rate of graduate school enrollment relative to parents' educational level. As of 1994, first-generation students who had earned bachelor's degrees were less likely than their counterparts whose parents had more than a high school education to be enrolled in graduate school (23 percent versus 30 percent). This is consistent with the earlier finding (shown in figure 2) that first-generation students were less likely than their non-first-generation counterparts to aspire to earn advanced degrees.

Among students who did enroll in graduate school, there were also differences according to first-generation student status in the types of programs in which students

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[13]Likewise, there were no significant differences in the 1993 salaries of students who had at most attained an associate's degree or certificate by 1994 according to first-generation status. The total salaries of male and female certificate holders ($20,595 versus $12,704) differed significantly. (U.S. Department of Education, National Center for Education Statistics, Beginning Postsecondary Students [BPS:90/94], Data Analysis System.)

enrolled. The majority of students who enrolled in graduate study were in master's degree programs, where first-generation students were as likely as non-first-generation students to be enrolled. Yet students whose parents had more than a high school education were somewhat more likely than first-generation students to enroll in other kinds of graduate programs, such as postbaccalaureate certificate programs, first-professional programs (law, medicine, dentistry, or theology) and doctoral degree programs.

To sum, first-generation students enrolled in postbaccalaureate education at lower rates than their counterparts. This could be because they had fewer economic resources than non-first-generation students to attend immediately after college, or because their cultural background placed less emphasis on attaining advanced degrees.

[14]The gender differences in earnings are statistically significant overall, and among both first-generation students and non-first-generation students.

Multivariate Analysis

As described in this paper, in addition to having parents who had never enrolled in postsecondary education, first-generation students have particular demographic, institutional, enrollment, and school integration characteristics that distinguish them from their non-first-generation peers. The results of the descriptive analysis also indicate that first-generation students persisted in postsecondary education at lower rates than non-first-generation students. The primary purpose of the multivariate analysis was to begin to explore whether first-generation student status had an effect, independent of other key variables, on students' persistence and attainment.

The multivariate analysis was conducted using the publicly accessible Data Analysis System (DAS) software developed by the National Center for Education Statistics. A correlation matrix that adjusted for the complex sample design of BPS was generated for the variables used in the model. The matrix was entered into SPSS to produce regression coefficients. In this analysis, an ordinary least squares regression model was used to measure how each of the various factors affected persistence and attainment.

In the model, the dependent variable is defined as having attained any degree or being enrolled at the time of the 1994 follow-up survey. This is a dichotomous variable, with the outcome being persist or did not persist. In regression models where the dependent variable is dichotomous, it is more appropriate to use logistic regression than the ordinary least squares model. The publicly accessible DAS software did not have the capability to produce results appropriate for use in a logistic regression model. The ordinary least squares regression model was employed as a type of linear probability model in which the results would be easier to interpret for a public audience.[15] At the same time, in most cases where the probability of the outcome (in this case, persistence) is reasonably high, but not greater than 75 percent (in this case, for the whole sample, 63

[15] For a more detailed discussion of linear probability, ordinary, and weighted least squares regression models, see John H. Aldrich and Forrest D. Nelson, 1984, *Linear Probability, Logit, and Probit Models* (Quantitative Applications in Social Sciences, Vol. 45) Beverly Hills, CA: Sage.

percent) the results of ordinary least squares and logistic regression approaches tend to be very similar (Goodman, 1976; Knoke, 1975).

In addition to first-generation status, the independent variables in the model included gender, age, SES, race-ethnicity, and institution type (4-year, public 2-year, and other less-than-4-year public and private, not-for-profit institutions). Whether or not students attended full time or part time and how integrated they were, both academically and socially, were also included in the model. To control for academic performance, freshman year GPA was also included as an independent variable.[16] The descriptive variables were entered in the model by recoding them as dummy variables. For each categorical variable, a reference group (usually the characteristic students were most likely to have) was assigned a value of 0. Defined categories of that variable other than the reference group category were entered and assigned a value of 1. The significance comparisons of the partial regression coefficients, shown in Table 18, therefore involve only the category as compared with the reference groups, which are as follows: parental education (non-first-generation), age (18 and under), gender (female), race (white), SES (middle 25 percent), enrollment (full-time), institution type (4-year), academic integration (middle score), social integration (middle score). GPA was entered as a continuous variable. Finally, the analysis was based on only those students who indicated when they began postsecondary education that their objective was to earn a credential (vocational certificate, associate's, or bachelor's degree).

The results of the analysis are displayed in Table 18. The regression coefficient, is shown in the left column, followed by the standard error of the regression coefficient, Beta coefficient, t-score, and significance of the effect (when compared with the reference group characteristic). These preliminary results indicate that first-generation status, independent of other background and enrollment factors with which it is correlated, has a significant negative effect on the likelihood of persistence and attainment. Using the linear probability model method of interpretation, it appears that the presence of first-generation status decreases the likelihood of persistence and

attainment by approximately 7 percentage points. As described earlier, the qualitative value of the magnitude of this value should be viewed with caution in light of the limitations of the regression model. Because of the limitation of the ordinary least squares regression model, I will focus on the direction and significance of the effect and its impact on persistence and attainment, rather than its actual magnitude.

Aside from the impact of first-generation status, the model also revealed some other interesting findings related to student background characteristics. As can be expected, it appears that enrolling in postsecondary education at the age of 19 or older has a significant negative effect on persistence and attainment. Likewise, entering a public 2-year college instead of a 4-year institution and enrolling part-time instead of full-time also had significant negative influences on persistence and attainment.

When examining the relationship between race-ethnicity and persistence, being black, compared with being white, appeared to have a significant negative effect on persistence and attainment. At the same time, being Asian/Pacific Islander or Hispanic, compared with being white, had a significant positive impact on persistence and attainment. This finding concerning Hispanic students is somewhat surprising, in light of other research indicating that they are less likely than white students to persist in postsecondary education. With respect to socioeconomic status, being in the lowest income quartile, compared with the middle income quartile, seemed to impact persistence and attainment in a negative way.

Particular levels of academic and social integration, as defined in the study, appeared to affect persistence and attainment. Having scores in the lowest quartile on academic or social integration, compared with having scores in the middle two quartiles of either index, seemed to negatively impact the likelihood of persistence and attainment. Finally, a rise in GPA appeared to have a positive impact on persistence and attainment. Because GPA was coded on a four-point scale and then multiplied by 100, the effect, while significant and positive, appears particularly small.

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[16]It was not possible in this model to control for academic ability before entering postsecondary education, since standardized test scores were not available for all students in the sample. GPA as a measure of academic performance might have included grades in remedial classes as well as in regular postsecondary courses.

The limitations of the ordinary least squares regression model in this analysis have already been discussed. In terms of the independent variables included in the model, it is possible that GPA is not an exogenous variable in the model and its inclusion may therefore diminish the magnitude of some of the other effects, such as those for low academic integration scores. This study did not investigate the interaction effects between the independent variables included in the model; it is likely that there are many significant and meaningful effects. Future refinements of the model, which would require special access to the restricted data, could include path analyses to explore interaction effects and correlations between factors such as GPA and low academic integration and further examine the magnitudes, direct and indirect effects of key independent variables on persistence and attainment.

Discussion

This paper has described the characteristics, experiences, and educational and labor market outcomes of first-generation college students—i.e., those whose parents' highest level of education is a high school diploma or less. Many of the findings from this study were consistent with previous research about first-generation college students. In particular, this study revealed that first-generation college students had particular demographic and enrollment characteristics that distinguished them from their non-first-generation peers. They were more likely than their counterparts to be female, older, and independent. In addition, first-generation students were more likely than non-first-generation students to have dependents and lower incomes, and to be enrolled in 2-year institutions. While enrolled, they were more likely than their counterparts to be enrolled part time, receiving some form of financial aid, and working full time.

First-generation students were also more likely than non-first-generation students to value improving their financial and professional status, which may reflect characteristics such as their lower socioeconomic status and parental educational attainment. This study reveals that, in terms of early market outcomes, those first-generation students who completed degree programs appeared to achieve this goal. Five years after beginning postsecondary education, first-generation students who had attained certificates or degrees were employed in similar positions and earned comparable salaries to those of their counterparts whose parents had attended college. At the same time, however, first-generation students were less likely to complete their postsecondary education within 5 years. Compared with their non-first-generation counterparts, they were more likely to be enrolled part-time, attend public 2-year institutions rather than 4-year institutions, and have lower index scores on levels of academic and social integration, all of which were negatively associated with persistence and attainment after controlling for covariation of related variables.[17]

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[17]As described in this report's earlier discussion about academic and social integration, little research has been conducted on the applicability of academic and social integration models to younger, more traditional, and older, less traditional, students. It should be kept in mind that the behaviors measured in academic and social integration may be more accessible and appealing to younger students, who are less likely to be first-generation. One study conducted at a small urban community college found that integration did not play as strong a role in affecting the persistence of older

Finally, even when demographic, enrollment, and institutional characteristics, as well as first-year academic performance and levels of academic and social integration, were controlled for in the multivariate analysis, first-generation students were less likely to persist in postsecondary education than their counterparts whose parents had obtained more education. This finding highlights the salience of first-generation status even beyond its association with other factors likely to reduce persistence.

Implications

These findings come at a time when the number and proportion of first-generation students in postsecondary education are expected to grow in the coming years. In the wake of challenges to affirmative action, first-generation student status is being considered as another mechanism to ensure diversity in the student population. In light of this research and these circumstances, first-generation student retention emerges as an important issue for researchers, policymakers, and practitioners. As exploratory research about this group of students, this study suggests further directions in which researchers, policymakers, and practitioners can examine the issue of first-generation student retention.

This study suggested that first-generation students were less likely to be involved academically or socially in their postsecondary institutions. Drawing from Tinto's theory of academic and social integration, it would be worth exploring further to what extent there are differences between first-generation and non-first-generation students in terms of their actual involvement and perceptions of membership in their institutions, and the impact of their participation or feelings of inclusion in their institutions on persistence. At the same time, since first-generation students tend to be older, and it has been shown that commonly used measures of academic and social integration may have less influence on the persistence and attainment of older students (Grosset, 1991), it would be useful to keep in mind that theoretical models of institutional involvement and membership may vary in relevance according to students' ages. It is not surprising that in this study's analysis, scores on academic and social integration tended to vary for different types of

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students as that of younger students. J. Grosset, "Patterns of Integration, Commitment, and Student Characteristics among Younger and Older Students," *Research in Higher Education*, 32 (2), (1991): 159–178.

institutions. This suggests that it would be worth exploring further the extent to which more narrowly defined institutional types, according to selectivity, may influence first-generation student retention.

While Tinto's conceptual framework emphasizes how students participate in and become members of institutions, analyses of the experiences of first-generation students, such as those of London (1989, 1992), Rendon (1992) and Lara (1992) highlight how first-generation students may face difficulties in separating from their cultural backgrounds when they first enter postsecondary education. Levine and Nidiffer (1996) have described how poor first-generation students enrolled in college find themselves negotiating between two cultures -- that of their past and that of their present. The challenge of integrating their past and present experiences may pose a possible barrier to their persistence. These students may feel particularly isolated from other students and from their families. Levine and Nidiffer (1996) and Rendon (1992) suggest that role models who understand these cultural differences deeply and have strongly held beliefs in the value of education are in a good position to assist these students. Another focus for further research and consideration by researchers, practitioners and policymakers could be understanding the particular cultural dynamics involved for first-generation students in the process of transitioning to and negotiating the challenges of postsecondary education.

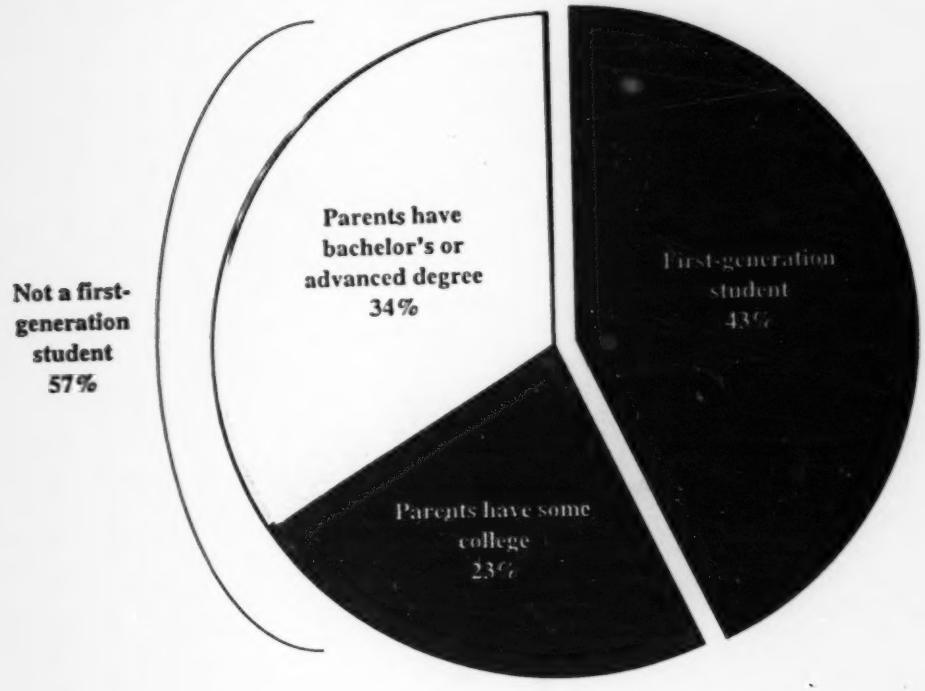
At the same time, this study's finding that, controlling for the effects of other key factors, compared with being white, being Asian/Pacific Islander or Hispanic had a positive influence and being black had a negative influence, on the likelihood of persistence, suggests that these particular cultural dynamics may vary for first-generation students of different races and ethnicities. This is a reminder that first-generation students enter college with a variety of cultural backgrounds. A more detailed analysis of the interaction effects between race-ethnicity, SES, and first-generation status would shed light on how each of these factors distinctly influences persistence.

Some research has used the concept of cultural capital, originally conceived by Pierre Bourdieu (1977, 1994), to explain how students from different socioeconomic and cultural backgrounds may have different educational outcomes. (McDonough, 1997, MacLeod, 1987, Walpole, 1998) In an educational environment, cultural capital would include predispositions, attitudes, self-presentation, and behaviors that are used to

succeed in school, attain a degree, and pursue an occupation (Bourdieu, 1977, 1994; Lareau and Lamont, 1988; McDonough, 1997). Applying this concept to first-generation students, it is likely that they might have fewer practices or cultural knowledge to navigate postsecondary education than their non-first- generation counterparts, whose parents presumably could pass on more knowledge about the college experience and the behaviors necessary to attain a degree. Some studies support this assertion. (Skinner and Richardson, 1992) Qualitative research can shed light on the micro-level dynamics of this cultural navigation for first-generation and non-first-generation students. Examining how the cultural practices and knowledge of first-generation and non-first-generation students compare, and what elements constitute these practices and knowledge, could contribute both to a more precise theoretical framework of cultural capital and a deeper understanding of the kinds of resources first-generation students may need to earn postsecondary credentials.

Another component of cultural capital theory, in this context, involves to what extent students from different parental education backgrounds are able to convert their educational attainment into higher incomes, further educational attainment, and/or quality of life. Evidence from this study suggests that even when they earn bachelor's degrees, first-generation students may garner fewer benefits from their postsecondary education than their non-first-generation peers. Early labor market outcomes appeared to be similar for these groups, but first-generation students entered graduate school at lower rates than their counterparts. The time horizon in this study available to study educational and labor market outcomes was short and could not account for delayed entry into professional and graduate school or labor market outcomes after completing professional and graduate school. One study found that among students who attended four-year colleges, nine years after entering postsecondary education, students from low-SES backgrounds had lower incomes and educational attainment than students from high-SES backgrounds (Walpole, 1997). Future studies could analyze longer-term educational and labor market outcomes and explore whether postsecondary education might be an equalizing force between first-generation and non-first-generation students later in life.

Figure 1—Percentage distribution of 1989–90 beginning postsecondary students according to first-generation status


Not a first-generation student 57%
Parents have bachelor's or advanced degree 34%
First-generation student 43%
Parents have some college 23%

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:90/94), Data Analysis System.

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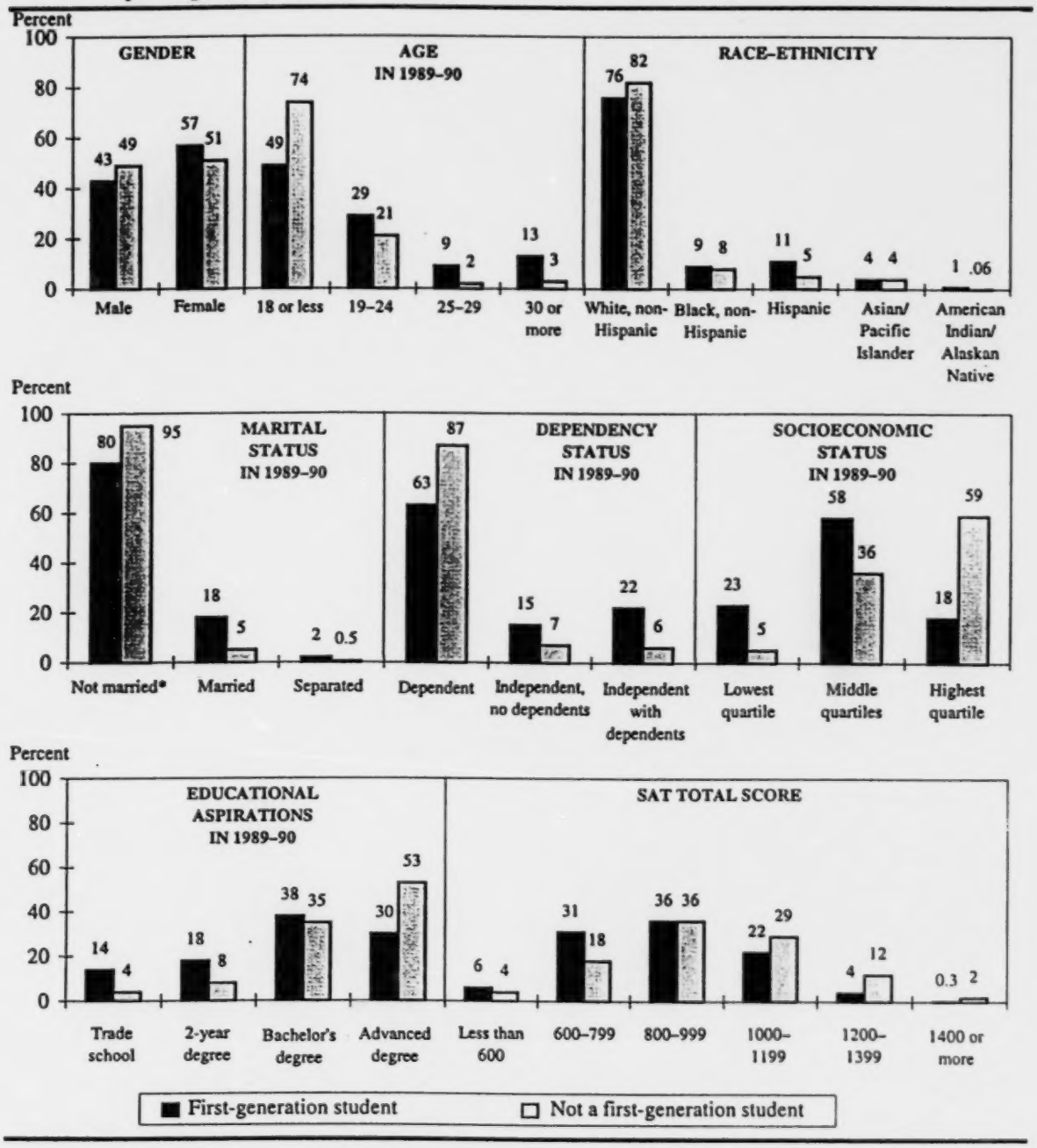
Figure 2—Percentage distribution of 1989–90 beginning postsecondary students according to demographics, by first-generation status



*The category "not married" includes the following categories: single, never married; living as married, never married; divorced; widowed; and living as married, previously divorced.

NOTE: Details may not sum to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:90/94), Data Analysis System.

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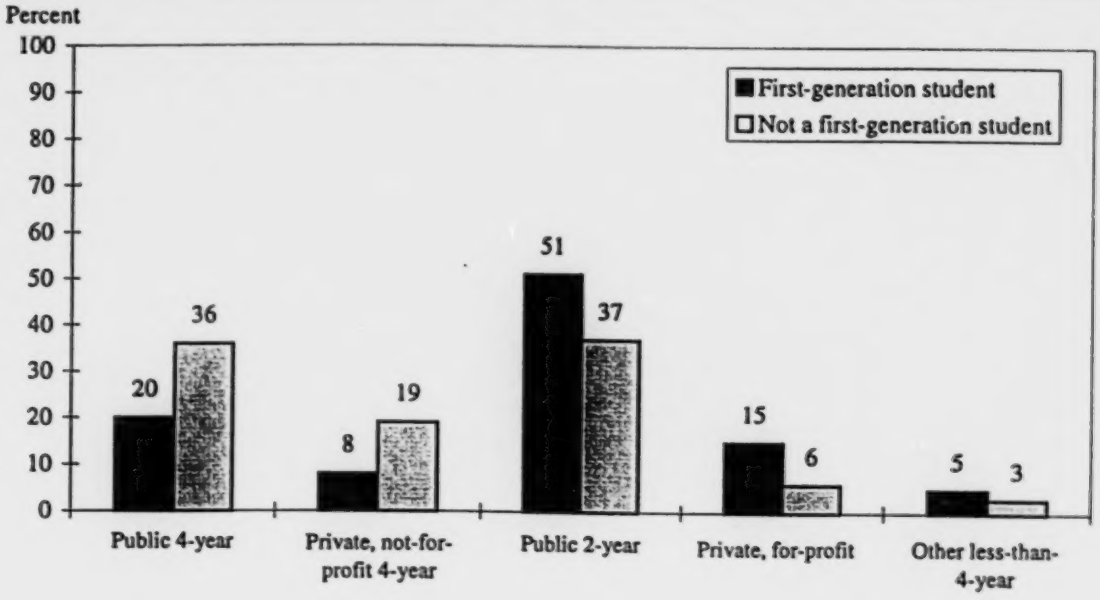
Figure 3—Percentage of 1989–90 beginning postsecondary students according to type of first institution, by first-generation status



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:90/94), Data Analysis System.

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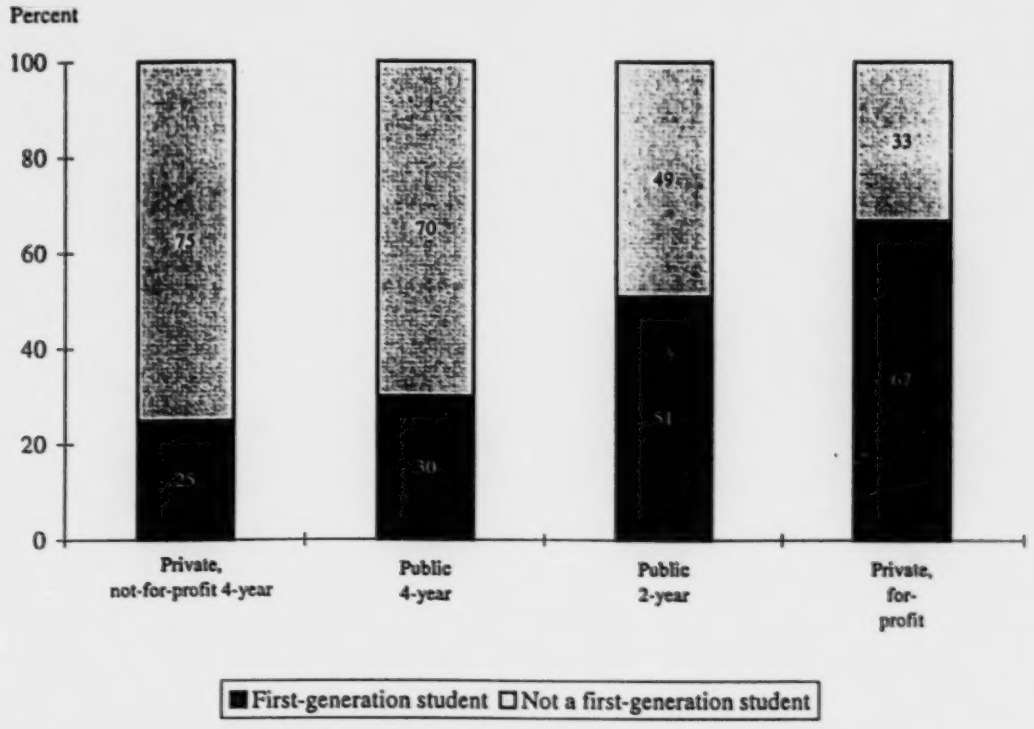
Figure 4—Percentage of 1989–90 beginning postsecondary students according to first-generation status, by first type of institution*



*Students in other less-than-4-year institutions (private, not-for-profit 2- to 3-year; public, less-than-2-year; and private, not-for-profit less-than-2-year) are not included in the detail, because the sample sizes were too small.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:90/94), Data Analysis System.

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Table 1—Percentage of 1989–90 beginning postsecondary students according to attendance status in 1989–90, by first-generation status

	Part-time	More than part-time
Total	21.7	78.3
First-generation student	30.1	69.9
Not a first-generation student	13.3	86.7
Parents have some college	17.3	82.7
Parents have bachelor's or advanced degree	10.5	89.5

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:90/94), Data Analysis System.

Table 2—Percentage distribution of 1989–90 beginning postsecondary students according to type of degree program in 1989–90, by first-generation status

	Associate's degree	Bachelor's degree	Certificate	Other
Total	33.8	33.0	17.0	16.3
First-generation student	38.7	22.5	22.4	16.4
Not a first-generation student	29.8	43.2	12.1	14.9
Parents have some college	32.8	37.3	15.3	14.7
Parents have bachelor's or advanced degree	27.8	47.3	9.9	15.1

NOTE: Details may not sum to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:90/94), Data Analysis System.

Table 3—Percentage distribution of 1989–90 beginning postsecondary students according to delayed entry status in 1989–90, by first-generation status

		Delayed	
	Did not delay	High school diploma	No high school diploma
Total	67.0	26.5	6.4
First-generation student	54.3	37.1	8.6
Not a first-generation student	80.9	15.7	3.4
Parents have some college	75.8	20.0	4.3
Parents have bachelor's or advanced degree	84.4	12.8	2.8

NOTE: Details may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:90/94), Data Analysis System.

Table 4—Percentage of 1989–90 beginning postsecondary students receiving various types of financial aid in 1989–90, by first-generation status

	Any aid	Grants	Loans	Other
Total	45.7	38.1	19.6	11.6
First-generation student	50.5	42.4	22.4	10.4
Not a first-generation student	42.3	35.0	17.8	12.7
Parents have some college	47.2	40.0	21.3	13.9
Parents have bachelor's or advanced degree	39.0	31.7	15.4	11.8

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:90/94), Data Analysis System.

Table 5—Percentage of 1989–90 beginning postsecondary students according to whether worked full time while enrolled in 1989–90, by first-generation status

	Did not work full time while enrolled	Worked full time while enrolled
Total	71.7	28.3
First-generation student	66.8	33.2
Not a first-generation student	76.4	23.6
Parents have some college	76.1	23.9
Parents have bachelor's or advanced degree	76.6	23.4

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:90/94), Data Analysis System.

Table 6—Percentage distribution of 1989–90 beginning postsecondary students according to number of types of remedial education courses taken in 1989–90, by first-generation status and institution type

	None	One or more
Total	84.7	15.3
First-generation student	85.0	15.0
Not a first-generation student	84.1	15.9
Parents have some college	81.9	18.1
Parents have bachelor's or advanced degree	85.6	14.4
Public 4-year		
Total	83.9	16.1
First-generation student	81.8	18.2
Not a first-generation student	85.0	15.0
Parents have some college	80.9	19.1
Parents have bachelor's or advanced degree	87.5	12.6
Private, not-for-profit 4-year		
Total	89.6	10.4
First-generation student	86.2	13.8
Not a first-generation student	90.8	9.3
Parents have some college	86.4	13.6
Parents have bachelor's or advanced degree	92.5	7.5
Public 2-year		
Total	81.5	18.5
First-generation student	84.0	16.0
Not a first-generation student	78.3	21.7
Parents have some college	76.6	23.4
Parents have bachelor's or advanced degree	79.7	20.3

NOTE: Academic integration index is a composite based on how often student reported attending career-related lectures, participating in study groups with other students, talking about academic matter with faculty, or meeting with an advisor concerning academic plans. Details may not sum to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:90/94), Data Analysis System.

Table 7—Percentage of 1989–90 beginning postsecondary students who find various professional/ financial achievement matters important, by first-generation status

	Influence the political structure	Become successful in one's own business	Be successful in line of work	Be able to find steady work	Be well off financially	Become an authority in a given field	Be a leader in one's community
Total	17.0	42.7	91.2	83.9	54.1	58.8	22.7
First-generation student	15.3	44.6	92.5	85.2	61.4	58.9	20.4
Not a first-generation student	18.4	41.5	90.8	83.0	48.7	58.8	24.3
Parents have some college	17.9	43.0	90.8	86.3	51.0	60.4	23.4
Parents have bachelor's or advanced degree	18.8	40.5	90.8	80.8	47.1	57.7	25.0

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:90/94), Data Analysis System.

Table 8—Percentage of 1989–90 beginning postsecondary students who find various personal achievement-related matters important, by first-generation status

	Get away from this area of the country	Give own children a better opportunity	Have children	Have leisure time to enjoy interests	Live close to parents and relatives
Total	11.6	80.9	52.3	66.6	17.0
First-generation student*	12.3	85.3	52.2	66.3	20.7
Not a first-generation student*	10.8	77.4	52.1	67.6	14.2
Parents have some college	11.7	81.7	51.2	66.4	16.5
Parents have bachelor's or advanced degree	10.2	74.4	52.7	68.5	12.6

*In this table, a total of 52.3 percent of beginning postsecondary students indicate that to have children is very important to them. This total does not lie within the range of the subtotals for first-generation (52.2) and non-first-generation (52.1) students. In cases like this, values for totals may not be within range of subgroup values due to missing cases on the subgroup variables.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:90/94), Data Analysis System.

Table 9—Percentage distribution of 1989–90 beginning postsecondary students according to academic integration levels in 1989–90, by first-generation status and institution type

	Integration index		
	Low score	Moderate score	High score
Total	24.9	46.5	28.6
First-generation student[1]	30.4	46.8	22.8
Not a first-generation student[1]	19.1	47.6	33.3
Parents have some college	22.8	43.4	33.8
Parents have bachelor's or advanced degree	16.6	50.5	33.0
Public 4-year			
Total	15.1	51.0	33.9
First-generation student	15.5	52.7	31.9
Not a first-generation student	14.6	50.8	34.7
Parents have some college	17.6	48.3	34.1
Parents have bachelor's or advanced degree	12.7	52.3	35.0
Private, not-for-profit 4-year			
Total	8.2	43.7	48.1
First-generation student	12.4	41.0	46.6
Not a first-generation student	6.5	44.9	48.7
Parents have some college	8.2	43.0	48.8
Parents have bachelor's or advanced degree	5.8	45.6	48.6
Public 2-year			
Total	35.6	44.9	19.5
First-generation student[1]	39.7	46.5	13.8
Not a first-generation student[1]	28.5	46.6	24.9
Parents have some college	30.5	39.4	30.1
Parents have bachelor's or advanced degree	26.9	52.2	20.9
Private, for-profit			
Total	28.7	45.0	26.3
First-generation student[1]	29.1	44.8	26.2
Not a first-generation student[1]	26.9	43.3	29.7
Parents have some college	31.2	41.3	27.5
Parents have bachelor's or advanced degree	19.6	46.9	33.6
Other less-than-4-year[2]			
Total	27.3	41.6	31.1
First-generation student	33.7	37.7	28.7
Not a first-generation student	17.9	47.8	34.3
Parents have some college	18.4	48.1	33.5
Parents have bachelor's or advanced degree	17.4	47.4	35.1

[1]Values for totals may not be within range of subgroup values due to missing cases on the subgroup variables.

[2] Includes students enrolled in private, not-for-profit 2-year and less-than-2-year institutions and public less-than-2-year institutions.

NOTE: Academic integration index is a composite based on how often student reported attending career-related lectures, participating in study groups with other students, talking about academic matter with faculty, or meeting with an advisor concerning academic plans. Details may not sum to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:90/94), Data Analysis System.

Table 10—Average academic integration score of 1989–90 beginning postsecondary students, by institution type and first-generation status

	Total	Public 4-year	Private, not-for-profit 4-year	Public 2-year	Private, for-profit	Other less-than-4-year
Total	2.4	2.6	2.8	2.2	2.3	2.4
First-generation student	2.3	2.5	2.8	2.1	2.3	2.3
Not a first-generation student	2.5	2.6	2.8	2.3	2.4	2.5
Parents have some college	2.5	2.5	2.8	2.3	2.3	2.6
Parents have bachelor's or advanced degree	2.5	2.6	2.8	2.3	2.6	2.5

NOTE: Academic integration index is a composite based on how often a student reported attending career-based lectures, participating in study groups with other students, talking about academic matters with faculty, or meeting with an advisor concerning academic plans.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:90/94), Data Analysis System.

Table 11—Percentage distribution of 1989–90 beginning postsecondary students according to social integration levels in 1989–90, by first-generation status and institution type

	Integration index		
	Low score	Moderate score	High score
Total	28.6	48.4	23.0
First-generation student	37.8	45.5	16.7
Not a first-generation student	19.0	52.4	28.6
Parents have some college	22.0	55.5	22.5
Parents have bachelor's or advanced degree	16.9	50.4	32.7
Public 4-year			
Total	15.1	55.1	29.8
First-generation student	21.5	53.7	24.8
Not a first-generation student	11.6	56.3	32.1
Parents have some college	14.4	57.1	28.5
Parents have bachelor's or advanced degree	10.0	55.8	34.3
Private, not-for-profit 4-year			
Total	9.2	42.1	48.7
First-generation student	17.4	41.8	40.8
Not a first-generation student	5.8	42.4	51.8
Parents have some college	9.5	45.4	45.1
Parents have bachelor's or advanced degree	4.3	41.3	54.5
Public 2-year			
Total	40.6	46.6	12.9
First-generation student	48.3	42.2	9.5
Not a first-generation student	28.8	55.0	16.2
Parents have some college	29.1	59.0	12.0
Parents have bachelor's or advanced degree	28.7	51.9	19.4
Private, for-profit			
Total	39.7	46.7	13.6
First-generation student[1]	38.5	46.9	14.6
Not a first-generation student[1]	38.1	47.0	14.9
Parents have some college	36.9	49.4	13.7
Parents have bachelor's or advanced degree	40.1	43.0	16.9
Other less-than-4-year[2]			
Total	29.8	49.5	20.7
First-generation student[1]	30.3	51.6	18.0
Not a first-generation student[1]	24.5	50.4	25.1
Parents have some college	23.0	54.6	22.4
Parents have bachelor's or advanced degree	26.1	46.1	27.8

[1]Values for totals may not be within range of subgroup values due to missing cases on the subgroup variables.

[2]Includes students enrolled in private, not-for-profit 2-year and less-than-2-year institutions and public less-than-2-year institutions.

NOTE: Social integration index is a composite based on how often student reported having contact with faculty outside of class, going places with friends from school, or participating in student assistance centers/programs or school clubs. Details may not sum to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:90/94), Data Analysis System.

Table 12—Average social integration score of 1989–90 beginning postsecondary students, by institution type and first-generation status

	Total	Public 4-year	Private, not-for-profit 4-year	Public 2-year	Private, for-profit	Other less-than-4-year
Total	2.1	2.3	2.6	1.9	1.9	2.0
First-generation student	1.9	2.2	2.4	1.8	1.9	2.0
Not a first-generation student	2.2	2.3	2.6	2.0	1.9	2.1
Parents have some college	2.1	2.3	2.5	1.9	1.9	2.1
Parents have bachelor's or advanced degree	2.3	2.4	2.7	2.1	1.9	2.2

NOTE: Social integration index is a composite based on how often student reported having contact with faculty outside of class, going places with friends from school, or participating in student assistance centers/programs or school clubs.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:90/94), Data Analysis System.

Table 13—Percentage distribution of 1989–90 beginning postsecondary students according to persistence and attainment status as of 1994, by first-generation status and institution type

	Attained or still enrolled			No degree, not enrolled	First degree attained			
	Attained degree	No degree, enrolled	Total		No degree	Certificate	Associate's degree	Bachelor's degree
Total	50.0	13.3	63.2	36.8	50.1	13.5	13.1	23.3
First-generation student	44.2	10.7	55.0	45.1	55.8	18.0	12.9	13.3
Not a first-generation student	55.5	15.9	71.3	28.6	44.5	9.0	14.0	32.5
Parents have some college	50.6	14.5	65.1	34.9	49.4	11.8	14.6	24.2
Parents have bachelor's or advanced degree	58.8	16.9	75.7	24.3	41.2	7.2	13.6	38.1
Public 4-year								
Total	54.8	18.4	73.2	26.8	45.2	3.4	5.5	46.0
First-generation student	46.4	19.8	66.1	33.9	53.7	6.2	6.1	34.1
Not a first-generation student	58.9	18.0	76.9	23.1	41.1	2.0	5.1	51.8
Parents have some college	53.3	17.4	70.7	29.3	46.7	1.5	5.7	46.2
Parents have bachelor's or advanced degree	62.3	18.3	80.7	19.3	37.7	2.3	4.8	55.3
Private, not-for-profit 4-year								
Total	71.9	8.6	80.5	19.5	28.1	2.9	4.5	64.5
First-generation student	62.9	8.2	71.1	28.9	37.1	3.2	4.6	55.1
Not a first-generation student	75.8	8.6	84.4	15.6	24.2	2.8	4.5	68.5
Parents have some college	70.6	8.5	79.2	20.9	29.4	4.3	6.0	60.3
Parents have bachelor's or advanced degree	77.9	8.6	86.5	13.5	22.1	2.2	3.9	71.9
Public 2-year								
Total	36.7	14.7	51.4	48.6	63.3	13.4	20.9	2.5
First-generation student	35.4	10.8	46.2	53.8	64.6	14.7	18.4	2.3
Not a first-generation student	39.8	20.1	60.0	40.1	60.2	10.9	26.0	3.0
Parents have some college	36.8	17.5	54.3	45.7	63.2	11.2	24.3	1.3
Parents have bachelor's or advanced degree	42.2	22.2	64.4	35.6	57.8	10.6	27.4	4.3
Private, for-profit								
Total	59.6	1.9	61.4	38.6	40.4	48.0	10.8	0.8
First-generation student	56.8	1.6	58.4	41.6	43.2	47.5	8.4	0.8
Not a first-generation student	65.9	3.0	68.9	31.1	34.1	49.8	15.1	1.1
Parents have some college	69.3	1.5	70.8	29.2	30.7	52.6	15.6	1.1
Parents have bachelor's or advanced degree	60.2	5.6	65.8	34.2	39.8	45.0	14.2	0.9
Other less-than-4-year*								
Total	54.4	7.6	62.0	38.0	45.6	37.5	15.5	1.4
First-generation student	51.0	5.3	56.3	43.7	49.0	38.6	12.2	0.3
Not a first-generation student	57.5	11.0	68.4	31.6	42.5	33.6	21.1	2.9
Parents have some college	57.3	8.1	65.3	34.7	42.8	41.4	14.2	1.7
Parents have bachelor's or advanced degree	57.7	14.0	71.7	28.3	42.3	25.4	28.3	4.1

*Includes students enrolled in private, not-for-profit 2-year and less-than-2-year institutions and public less-than-2-year institutions.

NOTE: Details may not sum to total due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:90/94), Data Analysis System.

Table 14—Percentage distribution of 1989–90 full-time beginning postsecondary students according to persistence and attainment status as of 1994, by first-generation status and institution type

	Attained or still enrolled			No degree, not enrolled	First degree attained			
	Attained degree	No degree, enrolled	Total		No degree	Certificate	Associate's degree	Bachelor's degree
Total	57.8	13.0	70.8	29.2	42.3	11.8	15.3	30.6
First-generation student[1]	52.8	10.3	63.1	36.9	47.2	17.2	16.0	19.6
Not a first-generation student[1]	60.8	15.0	75.8	24.2	39.2	7.7	15.3	37.8
Parents have some college	56.8	12.6	69.3	30.6	43.2	10.7	16.6	29.5
Parents have bachelor's or advanced degree	63.3	16.5	79.8	20.2	36.7	5.8	14.4	43.1
Public 4-year								
Total	57.6	18.3	75.9	24.1	42.4	3.1	5.3	49.2
First-generation student	47.8	20.5	68.4	31.7	52.2	5.1	5.6	37.1
Not a first-generation student	61.4	17.5	78.9	21.1	38.6	2.1	5.0	54.3
Parents have some college	55.7	17.7	73.3	26.7	44.4	1.2	5.3	49.2
Parents have bachelor's or advanced degree	64.8	17.3	82.1	17.9	35.2	2.6	4.8	57.3
Private, not-for-profit 4-year								
Total	76.0	7.7	83.7	16.3	24.0	2.6	4.7	68.7
First-generation student	67.6	6.8	74.4	25.6	32.4	2.3	4.8	60.6
Not a first-generation student	79.1	7.9	87.0	13.0	20.9	2.7	4.6	71.8
Parents have some college	74.0	8.0	82.0	18.0	26.0	3.5	6.1	64.4
Parents have bachelor's or advanced degree	81.1	7.9	89.0	11.0	18.9	2.3	4.0	74.8
Public 2-year								
Total	45.9	14.6	60.5	39.5	54.1	11.4	30.2	4.4
First-generation student	46.7	8.6	55.4	44.7	53.3	13.2	28.4	5.1
Not a first-generation student	45.8	19.5	65.3	34.7	54.2	8.8	32.9	4.1
Parents have some college	45.0	13.5	58.5	41.5	55.0	10.2	32.7	2.1
Parents have bachelor's or advanced degree	46.3	23.8	70.1	29.9	53.7	7.8	33.1	5.5
Private, for-profit								
Total	65.8	1.5	67.3	32.7	34.2	51.1	14.0	0.7
First-generation student	62.7	1.9	64.6	35.4	37.3	51.5	10.8	0.5
Not a first-generation student	71.3	1.2	72.5	27.5	28.7	50.6	19.5	1.2
Parents have some college	71.9	0.9	72.7	27.3	28.1	51.2	19.7	1.0
Parents have bachelor's or advanced degree	70.1	1.9	72.0	28.0	29.9	49.4	19.1	1.6
Other less-than-4-year[2]								
Total	59.0	5.6	64.6	35.4	41.0	38.2	18.9	1.9
First-generation student	55.3	4.2	59.5	40.5	44.7	38.3	16.6	0.4
Not a first-generation student	62.5	7.1	69.6	30.4	37.5	36.3	22.5	3.7
Parents have some college	65.9	0.7	66.7	33.4	34.1	46.4	17.3	2.2
Parents have bachelor's or advanced degree	59.1	13.4	72.5	27.6	40.9	26.3	27.7	5.1

[1]Values for totals may not be within range of subgroup values due to missing cases on the subgroup variables.

[2]Includes students enrolled in private, not-for-profit 2-year and less-than-2-year institutions and public less-than-2-year institutions.

NOTE: Details may not sum to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:90/94), Data Analysis System.

Table 15—Percentage of 1989–90 beginning postsecondary students with various employment characteristics, and of those employed, percentage distribution according to occupation, by first-generation student status and degree attained

	Employed April 1994	Job different from education and training[1]	Could have obtained job without education[1]	Occupation							
				Clerical	Crafts-man	Manager	Profess-ional	Sales	Service	Technical	Other
Certificate recipients (BPS)											
Total	95.7	25.4	30.1	24.3	20.8	9.5	6.8	4.6	24.3	6.6	3.2
First-generation student[2]	98.7	25.2	29.6	26.8	21.6	9.5	7.3	4.4	22.7	5.6	2.0
Not a first-generation student[2]	91.0	27.4	29.9	21.9	17.3	10.7	6.2	5.8	25.7	7.6	4.9
Parents have some college	91.3	22.5	35.9	20.4	21.8	12.0	5.6	7.4	24.3	8.3	0.2
Parents have bachelor's or advanced degree	90.7	30.3	26.2	23.3	12.9	9.3	6.7	4.2	27.0	6.9	9.6
Associate's degree recipients (BPS)											
Total	89.0	28.9	29.2	28.7	8.3	14.6	12.4	6.0	16.2	8.3	5.5
First-generation student[2]	92.2	21.1	27.2	28.8	6.9	19.2	10.0	3.6	16.8	7.8	7.0
Not a first-generation student[2]	86.5	35.3	29.9	29.4	8.5	10.8	14.2	7.9	16.3	8.5	4.4
Parents have some college	89.2	36.9	29.6	29.7	9.1	18.6	10.6	8.8	13.3	8.2	1.7
Parents have bachelor's or advanced degree	84.6	33.5	30.3	29.2	8.0	4.9	17.0	7.3	18.6	8.8	6.3
Bachelor's degree recipients (B&B)											
Total	87.0	25.0	55.9	17.9	3.2	19.6	26.2	7.1	17.4	7.8	0.9
First-generation student	88.7	22.5	54.1	18.6	3.0	19.4	25.4	6.4	18.3	8.3	0.7
Not a first-generation student	86.1	26.0	57.2	17.6	3.2	19.7	26.4	7.4	17.1	7.7	0.9
Parents have some college	88.9	24.6	57.4	17.2	2.7	21.5	26.1	8.4	15.9	7.1	1.1
Parents have bachelor's or advanced degree	85.0	26.5	57.1	17.7	3.4	19.0	26.6	7.0	17.6	8.0	0.8
No degree, no longer enrolled—total (BPS)											
Total	99.0	39.3	61.8	24.2	20.1	18.0	5.8	7.0	13.7	3.4	7.9
First-generation student	99.0	37.5	59.0	23.5	23.5	12.9	5.4	7.6	15.5	4.2	7.3
Not a first-generation student	98.9	43.0	70.6	24.5	16.5	22.4	6.0	7.0	12.5	2.9	8.2
Parents have some college	99.9	37.6	69.6	22.8	17.8	23.8	4.7	7.8	11.2	1.7	10.3
Parents have bachelor's or advanced degree	97.9	47.8	71.4	26.2	15.2	21.0	7.2	6.3	13.8	4.0	6.2

Table 15—Percentage of 1989–90 beginning postsecondary students with various employment characteristics, and of those employed, percentage distribution according to occupation, by first-generation student status and degree attained—Continued

	Employed April 1994	Job different from education and training[1]	Could have obtained job without education[1]	Occupation							
				Clerical	Craftsman	Manager	Professional	Sales	Service	Technical	Other
No degree, no longer enrolled—younger than 23 years (BPS)											
Total	99.1	45.1	66.6	24.7	21.4	18.0	5.0	7.7	12.6	3.2	7.5
First-generation student	98.8	40.8	59.2	23.5	26.6	14.7	4.9	8.1	12.5	3.3	6.5
Not a first-generation student	99.5	48.4	73.1	25.8	16.3	21.7	5.2	7.1	12.8	3.1	8.1
Parents have some college	99.9	48.9	70.2	25.4	17.2	23.0	2.4	8.2	11.5	1.9	10.3
Parents have bachelor's or advanced degree	99.0	48.1	75.1	26.0	15.5	20.6	7.5	6.3	13.9	4.1	6.2
No degree, no longer enrolled—23 years or older (BPS)											
Total	98.4	27.7	52.3	22.5	16.0	18.0	8.5	4.6	17.2	4.0	9.3
First-generation student[2]	99.5	31.2	58.6	23.5	15.1	7.8	7.0	6.3	24.1	6.6	9.6
Not a first-generation student[2]	93.9	—	—	12.3	18.8	28.9	14.3	5.9	9.9	0.6	9.4
Parents have some college	100.0	—	—	6.4	21.5	28.7	18.7	5.3	8.9	0.0	10.5
Parents have bachelor's or advanced degree	—	—	—	—	—	—	—	—	—	—	—

—Sample size too small for reliable estimate.

[1]These figures are for employed students only.

[2]Values for totals may not be within range of subgroup values due to missing cases on the subgroup variables.

NOTE: Details may not sum to total due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:90/94) and Baccalaureate and Beyond Longitudinal Study (B&B:93/94), Data Analysis Systems.

Table 16—Annual salary of bachelor's degree recipients as of April 1994, by gender and first-generation status

	Annual salary as of April 1994		
	Male	Female	Total
Total	$25,978	$20,663	$23,026
First-generation student	26,339	20,368	22,887
Not a first-generation student	25,816	20,753	23,044
Parents have some college	23,440	23,236	23,326
Parents have bachelor's or advanced degree	26,744	19,700	22,929

SOURCE: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond Longitudinal Study (B&B:93/94), Data Analysis System.

Table 17—Percentage of bachelor's degree recipients enrolled in graduate school, and of those enrolled, percentage distribution according to type of degree program as of April 1994, by first-generation status

		Graduate degree					
	Enrolled	No degree	Post-bachelor's certificate	Master's degree	Doctoral degree	First professional degree	Other
Total	27.3	21.2	3.3	43.7	4.8	9.1	17.9
First-generation student	23.0	21.5	1.7	45.5	2.6	6.0	22.7
Not a first-generation student	29.5	21.2	3.7	43.4	5.7	10.2	15.9
Parents have some college	27.6	21.1	3.8	49.1	3.4	6.1	16.5
Parents have bachelor's or advanced degree	30.2	21.2	3.7	41.4	6.5	11.7	15.7

NOTE: Details may not sum to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond Longitudinal Study (B&B:94), Data Analysis System.

Table 18--Predicting persistence and attainment five years after entering postsecondary education among 1989-90 Beginning Postsecondary Students who indicated plans to attain a vocational certificate, associate's, or bachelor's degree

Variable Types	B	SE B	Beta	t	Sig
Demographic					
First-Generation Student (vs. non-first-generation)	-0.0657	0.02	-0.07	-3.91	*
Age: 19-24 (vs. 18 and under)	-0.0695	0.02	-0.07	-3.98	*
Age: 25 and over (vs. 18 and under)	-0.0969	0.03	-0.07	-3.45	*
Gender: Male (vs. female)	-0.0211	0.01	-0.02	-1.41	
Race: Black, non-Hispanic (vs. white)	-0.0634	0.03	-0.04	-2.45	*
Race: Hispanic (vs. white)	0.0803	0.03	0.05	2.87	*
Race: Asian/Pacific Islander (vs. white)	0.1071	0.04	0.04	2.79	*
Race: American Indian/Alaskan Native (vs. white)	0.1569	0.09	0.03	1.71	
SES: Lowest 25 percent (vs. Middle 50 percent)	-0.0508	0.02	-0.04	-2.11	*
SES: Highest 25 percent (vs. Middle 50 percent)	0.0241	0.02	0.02	1.36	
Enrollment/Institutional					
Part-time Attendance (vs. Full-time Attendance)	-0.0736	0.02	-0.06	-3.35	*
Public 2-year (vs. 4-year)	-0.0880	0.02	-0.09	-4.89	*
Other private/public less-than-2-year institutions (vs. 4-year)	-0.0304	0.02	-0.02	-1.25	
Academic/Social Involvement and Experience					
Academic Integration, Low score (vs. Middle score)	-0.0605	0.02	-0.05	-3.05	*
Academic Integration, High score (vs. Middle score)	0.0118	0.02	0.01	0.65	
Social Integration, Low score (vs. Middle score)	-0.0856	0.02	-0.08	-4.27	*
Social Integration, High score (vs. Middle score)	0.0219	0.02	0.02	1.13	
First year academic performance GPA: 89-90	0.0006	0.00	0.13	8.26	*
Constant	*0.6487*	*0.03*	*0.06*	*22.54*	*

*p<.05

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